SQL Schema

Given a table tree, **id** is identifier of the tree node and **p\_id** is its parent node's **id**.

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| id | p\_id |

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| 1 | null |

| 2 | 1 |

| 3 | 1 |

| 4 | 2 |

| 5 | 2 |

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Each node in the tree can be one of three types:

* Leaf: if the node is a leaf node.
* Root: if the node is the root of the tree.
* Inner: If the node is neither a leaf node nor a root node.

Write a query to print the node id and the type of the node. Sort your output by the node id. The result for the above sample is:

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| id | Type |

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| 1 | Root |

| 2 | Inner|

| 3 | Leaf |

| 4 | Leaf |

| 5 | Leaf |

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**Explanation**

* Node '1' is root node, because its parent node is NULL and it has child node '2' and '3'.
* Node '2' is inner node, because it has parent node '1' and child node '4' and '5'.
* Node '3', '4' and '5' is Leaf node, because they have parent node and they don't have child node.

* And here is the image of the sample tree as below:

1

/ \

2 3

/ \

4 5

**Note**

If there is only one node on the tree, you only need to output its root attributes.